(FILE 'USPAT' ENTERED AT 14:31:14 ON 06 OCT 1999)
L1 5 S (PERSONAL DIGITAL ASSISTANT OR PDA) (P) POWER (P) MANAG?
(P
L2 2 S L1 AND DETECT?
L3 2 S L2 AND REFERENCE#
L4 1 S L3 AND COMPAR?

=> d l1 kwic

US PAT NO: 5,928,365 [IMAGE AVAILABLE] L1: 1 of 5

SUMMARY:

BSUM(7)

The **power management** method for such a main memory device is not so important as long as the **power** consumed by the main memory device is sufficiently small compared with the **power** consumed by the entire computer system. However, in a portable information terminal using a battery operation such as **PDA** (Personal Digital Assistance) or notebook type PC that has become popular in recent years, the structural elements of the computer system are made to be progressively less **power** consuming as a result of measures such as a use of a flash memory instead of a magnetic disk as. . . device, and a use of a liquid crystal display instead of a CRT as a display device, so that the **power consumption** by the main memory device is becoming

Meto/in

Capto

palm

reference Voltage (P)

{Warning alarm}

(P) Compar?

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L4 1 S L3 AND COMPAR?

=>d

1. 5,928,365, Jul. 27, 1999, Computer system using software controlled power management method with respect to the main memory according to a program's main memory utilization states; Hideki Yoshida, 713/324; 365/222; 711/104; 713/340 [IMAGE AVAILABLE]

=> d kwic

US PAT NO: 5,928,365 [IMAGE AVAILABLE] L4: 1 of 1

SUMMARY:

BSUM(7)

The **power management** method for such a main memory device is not so important as long as the **power** consumed by the main memory device is sufficiently small **compared** with the **power** consumed by the entire computer system. However, in a portable information terminal using a battery operation such as **PDA** (Personal Digital Assistance) or notebook type PC that has become popular in recent years, the structural elements of the computer system are made to be progressively less **power** consuming as a result of measures such as a use of a flash memory instead of a magnetic disk as. . . device, and a use of a liquid crystal display instead of a CRT as a display device, so that the **power consumption** by the main memory device is becoming unignorable.

SUMMARY:

BSUM(8)

In . . . memory elements such as SRAMs instead of usually used DRAMs, but the memory elements such as SRAMs are very expensive **compared** with DRAMs and have only limited capacities so that it is often quite inappropriate to use such memory elements as. . .

SUMMARY:

BSUM(9)

As . . . element to which data are to be actually written among a plurality of DRAM elements constituting a memory card is **detected** by means of hardware, and the power is supplied only to the **detected** DRAM element while the power supply to the other DRAM elements is interrupted.

DETDESC:

DETD(19)

When . . . supply with respect to that unused memory bank into the power supply target bank indication register 121. This processing for **detecting** the unused memory bank by the memory power management unit 107 is executed every time the memory management unit 104. . .

DETDESC:

DETD(21)

Now, with **references** to the flow charts of FIG. 5 to FIG. 7, the concrete procedures for the main memory power management in. . .

DETDESC:

DETD(53)

Now, the detailed procedure of the data compression processing at the step S60 of FIG. 11 will be described with **references** to FIG. 12 and FIG. 13.

DETDESC:

DETD(60)

Now, the detailed procedure of the data expansion processing at the step S70 of FIG. 14 will be described with **references** to FIG. 15 and FIG. 16.

DETDESC:

DETD(70)

FIG. . . . this computer system of FIG. 17 are substantially the same as those of FIG. 1 as indicated by the same **reference** numerals given

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1. 5,928,365, Jul. 27, 1999, Computer system using software controlled power management method with respect to the main memory according to a program's main memory utilization states; Hideki Yoshida, 713/324; 365/222; 711/104; 713/340 [IMAGE AVAILABLE]

2. 5,881,300, Mar. 9, 1999, Method and system for saving power in a computer system having a communication device; Chenchao Chen, 713/340, 300, 320, 322 [IMAGE AVAILABLE]

3. 5,774,131, Jun. 30, 1998, Sound generation and display control apparatus for personal digital assistant; Hong Joo Kim, 345/503, 509; 700/94; 704/270 [IMAGE AVAILABLE]

4. 5,625,882, Apr. 29, 1997, Power management technique for determining a device mode of operation; Frederick W. Vook, et al., 455/38.3, 343, 517 [IMAGE AVAILABLE]

5. 5,560,021, Sep. 24, 1996, Power management and packet delivery method for use in a wireless local area network (LAN); Frederick W. Vook, et